

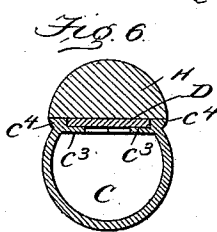
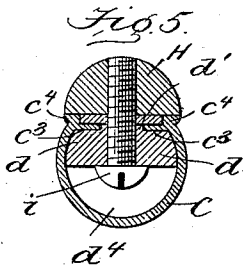
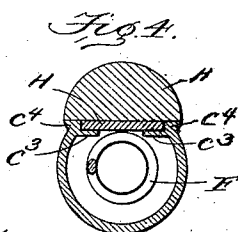
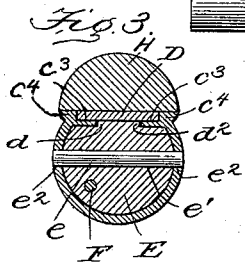
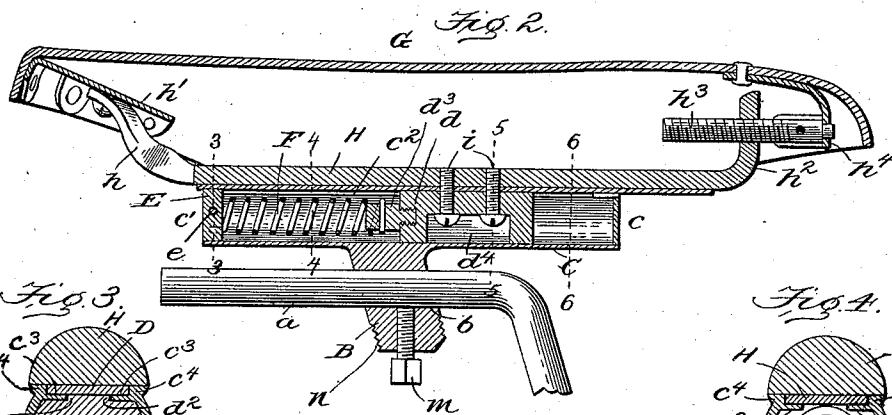
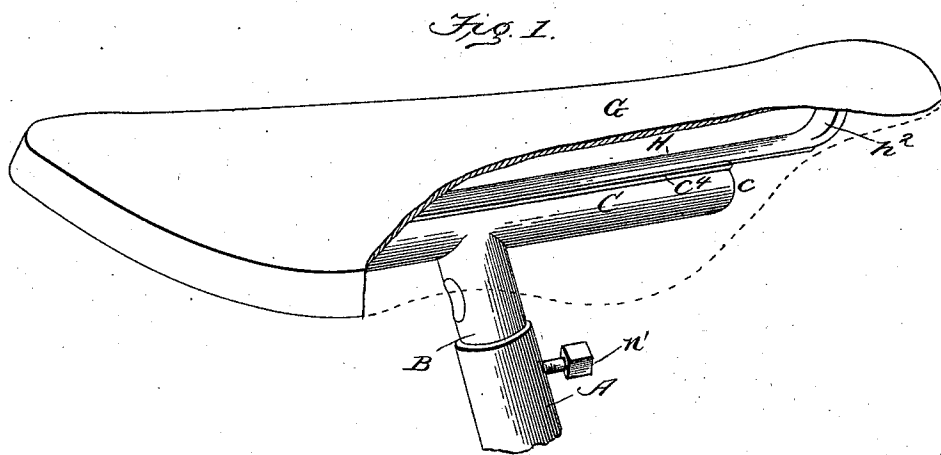
(No Model.)

2 Sheets—Sheet 1.

C. E. VAIL.
BICYCLE SADDLE CARRIAGE.

No. 577,085.

Patented Feb. 16, 1897.



WITNESSES:

Edwin L. Bradford
J. G. Steinmetz Jr.

INVENTOR

Charles E. Vail
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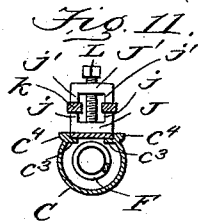
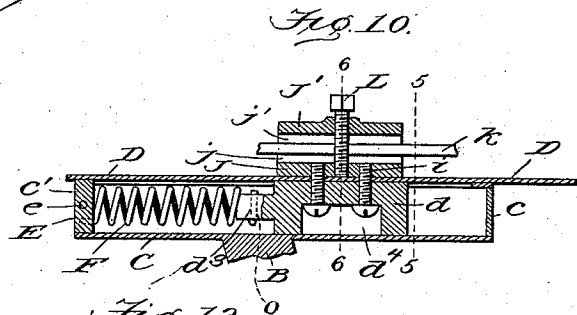
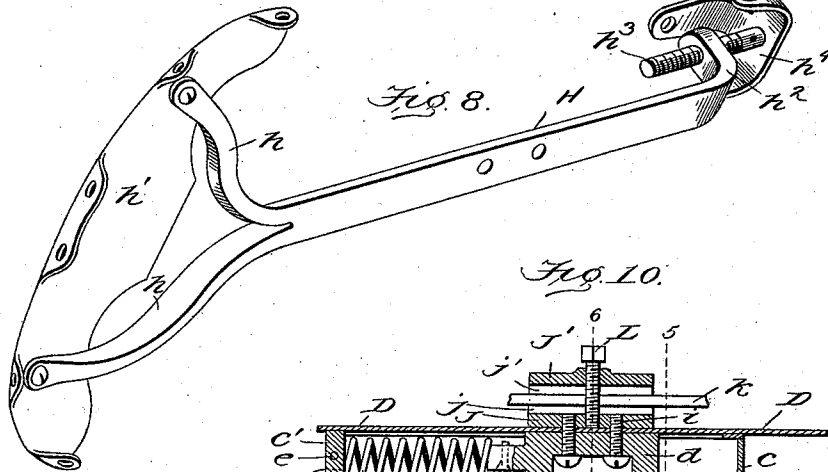
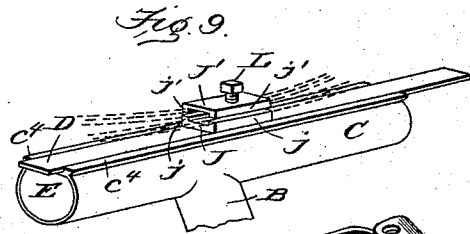
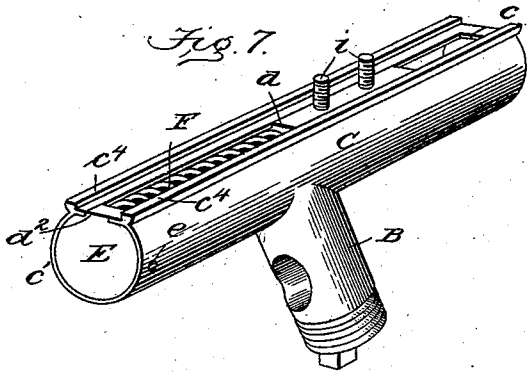
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2 Sheets—Sheet 2.

C. E. VAIL.
BICYCLE SADDLE CARRIAGE.

No. 577,085.

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WITNESSES:

Edwin L. Bradford
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INVENTOR

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UNITED STATES PATENT OFFICE.

CHARLES E. VAIL, OF SALT LAKE CITY, UTAH.

BICYCLE-SADDLE CARRIAGE.

SPECIFICATION forming part of Letters Patent No. 577,085, dated February 16, 1897.

Application filed November 11, 1896. Serial No. 568,618. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. VAIL, a citizen of the United States, residing at Salt Lake City, in the county of Salt Lake and Territory of Utah, have invented certain new and useful Improvements in Bicycle-Saddle Carriages; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to carriages for bicycle-saddles; and it has for its object to provide a simple and improved device of this character which will automatically operate to relieve the rider from the concussion and strain incident to the passage of bicycles over rough surfaces, thus affording greater comfort, ease, and safety.

To these ends my invention embodies a carriage device adapted to automatically yield in a longitudinal plane, the saddle being connected to said yielding carriage, so that it has a yielding or sliding movement in a longitudinal plane with relation to the line of travel and on approximately a horizontal plane, independent of any vertical yielding or spring movement, means being provided (preferably spring-actuated) for controlling said longitudinally-yielding movement of the carriage and returning the latter to normal position.

In the drawings, Figure 1 is a perspective view illustrating my invention with the saddle in position, parts being broken away to show the construction. Fig. 2 is a vertical longitudinal sectional view showing the yielding movement in dotted lines. Figs. 3, 4, 5, and 6 are detail transverse sectional views taken, respectively, on the lines 1 1, 2 2, 3 3, and 4 4, Fig. 2. Fig. 7 is a detail perspective view of the body portion or cylinder of the carriage. Fig. 8 is a detail perspective view of the sliding or yielding member of the carriage, looking toward the under side of the saddle. Fig. 9 is a perspective view illustrating a modified form or construction, the saddle being shown in dotted lines. Fig. 10 is a vertical longitudinal sectional view of said modification. Figs. 11 and 12 are detail transverse sectional views of said modification, taken, respectively, on the lines 5 5 and 6 6, Fig. 8.

Corresponding parts in all the figures are denoted by the same letters of reference.

Referring to the drawings, A designates the upright saddle-post, which is adapted to be adjustably mounted upon the frame in any suitable manner. Connected with said saddle-post is a stem B. This connection may be integral or detachable, and the stem B can be connected with a straight saddle-post, as shown, or mounted upon the horizontal arm *a* of an angular saddle-post, for which latter purpose the stem B may be provided with a transverse opening *b*, adapted to receive the top arm *a* of the post, the parts being secured in position by set-screws in any suitable or usual manner.

Carried upon the stem B is the body or main fixed member C of the saddle-carriage. This member is preferably constructed in the form of a cylinder or barrel, mounted longitudinally with relation to the bicycle and having a closed front end *c*, an open rear end *c'*, and a longitudinal top slot *c²*. At each side of the longitudinal slot *c²* are formed longitudinal slideways *c³*, at the outer sides of which and on top of the cylinder are preferably provided longitudinal shoulders or ribs *c⁴*.

D designates the sliding or yielding member of the carriage, which is preferably in the form of a flat plate adapted to slide upon the slideways *c³ c³* between the ribs or shoulders *c⁴ c⁴*. The plate D carries upon its under side a cylindrical knob or projection *d*, adapted to be received within the cylinder or barrel C and preferably corresponding thereto. The connecting portion *d'*, between the knob *d* and the plate D, is accommodated in the open top or slot *c²* of the cylinder, and at this point of connection the knob is preferably provided with longitudinal shoulders *d² d²*, corresponding to the slideways *c³ c³*, as shown. The knob or projection *d* is located about centrally of the plate D, or some distance from the front end of the latter, so that it will be normally some distance from the front end of the cylinder.

E designates a cap-piece or plate, preferably corresponding to the open rear end *c'* of the cylinder C and adapted to be secured in or upon said open end. This plate or closure E is preferably secured in position by means of a transverse removable pin *e*, passing

through a transverse opening e' in the latter and through registering openings e^2 e^2 in the walls of the cylinder.

Between the end plate E and the knob or projection d is mounted a coiled spring F, adapted to be contained within the cylinder. The ends of this coiled spring are respectively secured to the members E and d in any suitable manner, and the member d is preferably provided with a rearwardly-projecting stud d^3 , received by the spring and carrying the front end of the same, this stud being preferably connected with the member d by a screw-threaded construction, as shown, to enable its detachment therefrom and the consequent disconnection of the spring from the member d when desired.

In the foregoing construction and arrangement it will be noted that the sliding or yielding member (the plate D) carries the knob or projection d , the spring F, and the end plate or cap-piece E, which parts are adapted to be received by the cylinder and contained therein. Any suitable form or construction of cap-piece or end closure E may be employed, and the latter may be secured in position in any suitable manner, so that the spring has its ends respectively connected to the fixed rear end portion of the cylinder and the knob or projection d of the sliding plate D. One end of the spring is thus connected to the cylinder or fixed member of the carriage and the other end is connected to the sliding or yielding member of the carriage. By this construction and arrangement the saddle-carriage has a sliding or yielding movement in a longitudinal plane both in a forward and rearward direction. If only a rearwardly-yielding movement is desired, the spring need not be connected to the respective parts at its ends, but could be loosely mounted in the cylinder, so that the member d would bear upon its front end. In this event the knob or projection d would be relatively mounted so that it would be normally at the front end of the cylinder.

The saddle G is mounted and carried upon the sliding or yielding member D, this construction being preferably carried out by a longitudinal saddle plate or bar H, secured to the top of the plate D. The saddle-bar H may be connected with the plate D by screws i , passing through the respective parts, the bottom or under side of the knob or projection d being preferably recessed, as shown at d^4 , to accommodate the heads of said screws. The longitudinal saddle-bar H is thus virtually a part of the sliding or yielding plate or member D, and at its rear end is provided with divergent projecting arms h h , carrying a suitable plate h' , upon which the rear portion of the saddle is supported. The front end of the saddle-bar H is turned upwardly in front of the sliding plate D, as shown at h^2 , and is adapted to receive an adjusting-screw h^3 , carried by a suitable plate h^4 , supporting the front end of the saddle.

In the foregoing construction and arrangement my invention embodies a complete saddle device or mechanism adapted to be applied to any bicycle, the saddle itself being a fixed or component part of my device. This improved bicycle-saddle device or mechanism, as embodied in my invention, thus has no vertical spring movement, but has a spring or yielding movement only in a longitudinal plane with relation to the line of travel and on approximately a horizontal plane with relation to the bicycle, this approximately horizontal yielding or sliding movement being exercised in both a forward and rearward direction. When the saddle is in normal position, it has a rearwardly-yielding movement by compression of the spring or cushion between the member d and the rear end piece or closure E of the cylinder. It also has a yielding or spring movement in a forward direction corresponding to the space in the cylinder in front of the member d against the tension of the spring, inasmuch as the latter is connected at its respective ends to the fixed and to the movable or sliding members of the device. This forward yielding or spring movement relieves the saddle from jar or shock when it is returned by action of the spring from its rearward yielding or spring movement, and also prevents impact of the member d against the front end of the cylinder.

As above set forth, only a rearward yielding or spring movement may be provided, if desired, by a relative arrangement of parts in which the member d is normally at the front end of the cylinder, in which case the interposed spring or cushion need not be secured at its ends.

The saddle-bar H may be an integral part of the plate D, if desired, in lieu of being separably connected with the sliding plate.

In Figs 8, 9, 10, and 11 I have illustrated a modified form or construction in which the saddle, instead of being a permanent or component part of the device, is adapted for convenient connection or detachment from the yielding carriage mechanism. In this construction the sliding plate D is provided with suitable devices for connection of the saddle. Any suitable or adapted devices for this purpose may be employed, and any suitable or desired saddle may be connected with the carriage, whether the saddle be provided with vertically-operating springs or not. I have herein illustrated one form of connecting device in which a plate or projection J is provided upon the top of the plate D and formed with side shoulders j , between which and corresponding shoulders j' on a top clamp-block J' the longitudinally-arranged saddle bars or springs k k are bound, the clamp-block J' being adjusted by means of a set-screw L, passing vertically through the respective parts.

In the connection of the stem B with the saddle-post A, I prefer to employ a set-screw m , working up through the bottom of the

stem into the opening *b* to provide for the adjustment of the saddle-carriage upon the arm *a* of the saddle-post. When the stem of the saddle-carriage is thus mounted upon the arm of an angular saddle-post, variation in the longitudinal adjusted position of the saddle is permitted with relation to its automatic yielding movement in a longitudinal plane.

When the stem *B* is connected with a straight upright saddle-post, I prefer to employ a threaded stem, as at *n*, adapted to be received in the threaded top end of the saddle-post and secured by a transverse set-screw *n'*.

By reason of the improved construction and arrangement of parts as embodied in the form of my invention herein illustrated the operating members of the sliding or yielding carriage are protected from exposure, so that the operation will not be impaired by the accumulation of dust, grit, &c.

It will be understood that the saddle may be a fixed or component part of the yielding device or mechanism, or that it may be of any suitable or adapted construction and connected in any suitable or desired manner with the sliding or yielding member of the carriage. It will also be understood that the connection of the fixed member or body of the carriage with the saddle-post or frame of the bicycle may be effected in any suitable or desired manner.

By reason of the improved construction and arrangement herein described the parts of the device are readily separable for purposes of substitution, adjustment, or repair, it being merely necessary to detach the cap-piece or end closure *E* to enable convenient separation of the sliding and fixed members of the carriage or removal of the spring.

I prefer to employ springs of different tension adapted to variation in the weight of the rider, the different springs being capable of ready and convenient detachment from or connection with the device. The different springs may be each permanently carried upon a corresponding end piece or closure *E* and have their front ends adapted to be passed through a transverse opening *o* in the projecting removable stud *d*³ for connection with the member *d*, by which arrangement substitution of springs of different tension may be quickly and conveniently effected.

The operation and advantages of my invention will be readily understood.

When the bicycle strikes an obstruction, or during its passage over an uneven or irregular surface, the rider is relieved from the jolt or jar by the immediate yielding or sliding of the saddle-carrying carriage in a longitudinal plane with relation to the line of travel. Normally the saddle-carriage is retained in proper position by the tension of the spring mechanism, but in the yielding or sliding movement of the device the spring serves as a cushion, which not only takes up the jar of the bicycle, but also serves to return the saddle and yielding mechanism to normal po-

sition when the strain is relieved, thus effectually overcoming the effect upon the rider of jarring and jolting of the bicycle.

I do not desire to be understood as limiting myself to the details of construction and arrangement as herein shown for carrying out my invention, but reserve the right to all such modifications or variations in the general construction and arrangement of parts as properly fall within the spirit and scope of my invention and the terms of the following claims.

Having thus described my invention, I claim and desire to secure by Letters Patent—

1. A bicycle-saddle carriage, comprising a plate or member provided with a knob or projection, a cylinder or barrel receiving said knob or projection and having a longitudinal slot and an open end, a spring or cushion mounted within the cylinder with relation to said knob or projection, and a detachable cap-piece or end closure mounted at the open end of the cylinder, one of the first-mentioned or main members being adapted to slide or yield longitudinally with relation to the other member and in a longitudinal plane with relation to the line of travel, said yielding member carrying the saddle and the other member having a fixed position, substantially as and for the purpose set forth.

2. A bicycle-saddle carriage, comprising a plate or member provided with a knob or projection, a cylinder or barrel receiving said knob or projection and provided with the longitudinal slot and an open end, a spring or cushion mounted in the cylinder with relation to said knob or projection, a detachable cap-piece or end closure mounted at the open end of the cylinder, one of said main members having a sliding or yielding movement with relation to the other member and in a longitudinal plane with relation to the line of travel and the other member having a fixed position, devices carried by said yielding member for the attachment of the saddle, and a stem projecting from said fixed member for attachment to a saddle-post, substantially as and for the purpose set forth.

3. As an improvement in bicycles, a supporting-stem for the saddle, having a transverse opening, said stem being thus adapted for connection with either a straight saddle-post or with the arm of an angular saddle-post, substantially as and for the purpose set forth.

4. A bicycle-saddle carriage comprising a cylinder or barrel, a member received thereby, one of said members having a sliding movement in a longitudinal plane only, with relation to the other member, and a spring located in the cylinder or barrel between one end of the same and the other member and respectively connected therewith at its ends; substantially as and for the purpose set forth.

5. A bicycle-saddle carriage, comprising a cylinder or barrel having a longitudinal slot

or slideway and an open end, a plate or member provided with a knob or projection received by said cylinder, one of said members having a fixed position and the other member
5 having a sliding or yielding movement in a longitudinal plane with relation to the line of travel, a detachable cap-piece or end closure adapted to be secured at the open end of the
10 cylinder, and a controlling-spring having its ends respectively connected to the detachable end piece of the cylinder and to the knob or projection of the other member, substantially
as and for the purpose set forth.

6. A bicycle-saddle carriage, comprising
15 the cylinder or barrel, a plate or member having a knob or projection received by said cylinder and relatively mounted so that its normal position within the cylinder is some distance from the front end of the latter, and a
20 controlling-spring mounted in the cylinder in the space in rear of said knob or projection and having its ends respectively connected to the end portion of the cylinder and to said knob or projection, one of said main mem-
25 bers having a fixed position, whereby the

other member has a sliding or yielding movement in a longitudinal plane with relation to the line of travel and in both a forward and rearward direction, said yielding movement being controlled by the spring and the latter
30 acting to return the yielding member to normal position from either direction, substantially as and for the purpose set forth.

7. A bicycle-saddle carriage, comprising a barrel or cylinder having a slot or slideway
35 and an open end, a plate or member provided with a knob or projection received by said cylinder, a detachable cap-piece or end closure mounted at the open end of the cylinder, and a detachable spring having one end connected
40 with said end piece and the other end detachably connected with said knob or projection, substantially as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES E. VAIL.

Witnesses:

J. R. LITTELL,
CHAS. W. BOYLE.